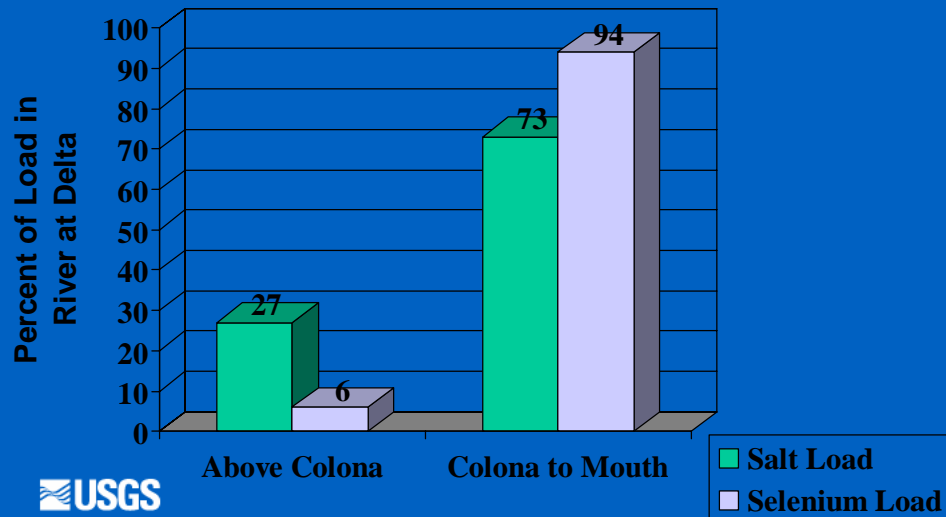


## Salt and Selenium Pickup in the Uncompahgre River Valley



## Who is Addressing This Problem?

- National Irrigation Water Quality Program (NIWQP **BOR, USFWS, USGS, BIA**) (**1988-2004**)
- Gunnison River Basin Selenium Task Force (**formed 1998**)
- Grand Valley Selenium Task Force (**formed 2001**)

## **National Irrigation Water Quality Program**

- Originated in response to Kesterson
- Team composed of U.S. Geological Survey, U.S. Fish & Wildlife service, & Bureau of Reclamation
- Objective is to mitigate impacts to endangered fish & migratory waterfowl caused by Federal projects
- Identifies selenium sources & impacted areas
- Plans and implements remediation projects in cooperation with stakeholders

## **NIWQP Findings**

- Reviewed data from 600 sites in western U.S.
- Identified 5 sites of significant concern, including Salton Sea.
- Gunnison/Grand Valley selenium concentrations are at levels that have been shown to impact endangered fish.

## Selenium Removal During a Flood Experiment at Stewart Lake, Utah: Best management

practice for a contaminated wetland?



### SUMMARY

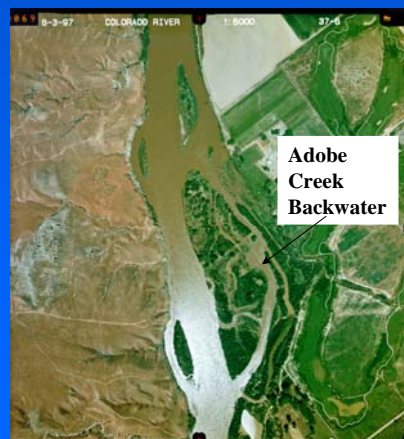
- ◆ Se transported conservatively during flooding
- ◆ Se removed from deep gw after flooding stopped
- ◆ Water and soil sampling confirms Se transport to deep gw
- ◆ Median Se flux rate to deep gw estimated 0.65 mg/hr/m<sup>2</sup>
- ◆ Seven flooding cycles may meet soil remediation goal

D. Nafiz, R. Rowland: U.S. Geological Survey  
J. Yahnke, J. Miller, S. Noyes: U.S. Bureau of Reclamation



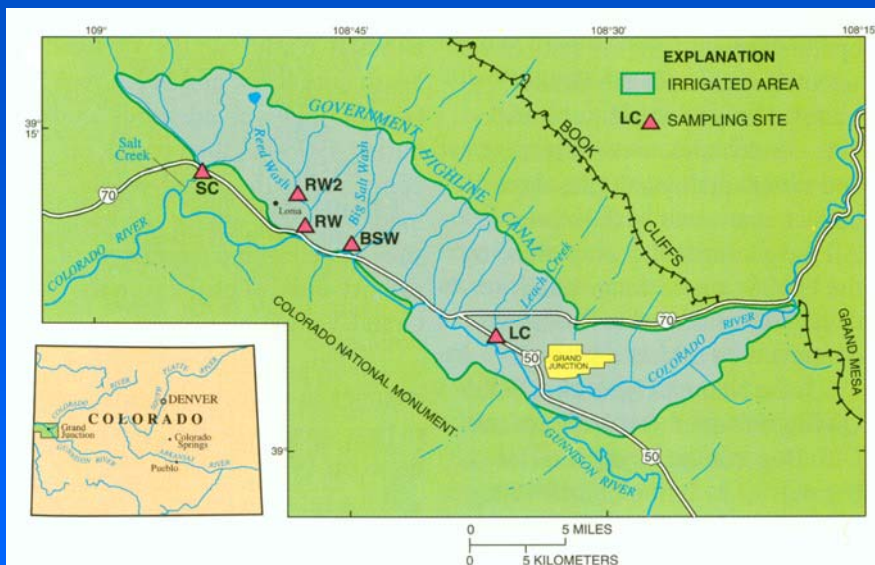
## NIWQP Focus in the Grand Valley and Lower Gunnison

- **Grand Valley:** reduce selenium at 23 endangered fish habitat areas.
- **Lower Gunnison:** reduce loading from Federal irrigation project.
- Remediation and planning activities were suspended in 2003.



## Salinity Control and Reduction of Selenium Loads in the Grand Valley

- Since 1978, \$200,000,000 spent in the Grand Valley by Salinity-Control Program
- Assume some selenium reduction, how much?
- Estimated 70,000 lbs of selenium transported out of Lake Powell
  - Gunnison reductions to meet instream standard represents about 8 percent of this load.



Salinity Trends evaluated in the Grand Valley